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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary

Application No.

10/748,702

Applicant(s)

JAYAKRISHNAN ET AL.

Examiner

BRENDA PHAM

Art Unit

2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,8,9,12-14,18,19,27-31 and 33-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,2,5,8,9,12-14,18,19,27-31 and 33-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-2, 5, 8-9, 12-14, 18-19, 27-31, 33-41 are pending in the application. Claims 33-41 are newly added.

Response to Arguments

2. Applicant's arguments with respect to claims 1-2, 5, 8-9, 12-14, 18-19, 27-31, 33-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 5, 8, 12, 19, 27, 30, 35, 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the specification was not described the step of receiving a message on the first stacked switching device from the second stacked switching device, the message identifying a congested second location in the second stacked switching device; determining that a destination location of a first packet of the received plurality of packets is the congested second location.

Regarding claim 5, the specification was not described the step of receiving a plurality of packets on a first stacked switching device from a second stacked switching device, the plurality of packets for transmitting to a plurality of first locations in the first stacked switching device; determining that a first location in a first switching device included in the first stacked switching device is congested; and transmitting a message to the second stacked switching device identifying the congested location to temporarily stop packet transmission, the message comprising a frame including a plurality of segments, a first segment of the plurality of segments identifying the congested location and a second segment of the plurality of segments identifying the first switching device.

Regarding claim 8, the specification does not described the step of receiving a plurality of packets at a plurality of first locations in a first stacked switching device operatively coupled to a second stacked switching device; receiving a message on the first stacked switching device from the second stacked switching device, the message identifying a congested second location in the second stacked switching device.

Regarding claim 12, the specification does not described the step of receiving a plurality of packets on a first stacked switching device from a second stacked switching device, the plurality of packets for transmitting to a plurality of first locations in the first stacked switching device; determining that a first location in a first switching device included in the first stacked switching device is congested; and transmitting a message to the second stacked switching device identifying that congested location to temporarily

stop packet transmission, the message comprising a frame including a plurality of segments, a first segment of the plurality of segments identifying the congested location and a second segment of the plurality of segments identifying the first switching device.

Regarding claim 13, the specification was not described the step of transmitting the message from the second stacked switching device to a third stacked switching device.

Regarding claim 18, the specification was not described the step of transmitting a plurality of packets from one or more second locations at the second stacked switching device to the first stacked switching device; receiving a message from the first stacked switching device to regulate packet flow, the message identifying a congested first location in the first stacked switching device.

Regarding claim 19, the specification was not described the step of receiving the plurality of packets from the second stacked switching device; determining that a first location in the first switching device included in the first stacked switching device is congested; and transmitting a message to the second stacked switching device to temporarily stop packet transmission, the message identifying the congested location, the message comprising a frame including a plurality of segments, a first segment of the plurality of segments identifying the congested location and a second segment of the plurality of segments identifying the first switching device.

Regarding claims 27 and 30, the specification was not described wherein slowing packet transmission comprises stopping packet transmission from the first stacked switching device to the congested second location in the stacked second switching device.

Regarding claim 35, the specification was not described wherein the frame comprises a first segment identifying the second stacked switching device.

Regarding claim 39, the specification was not described wherein the frame comprises a first segment identifying the second stacked switching device.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5, 8-9, 12-14, 18-19, 27-31 and 33-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mackay (US 6,600,727 B1) in view of Chen et al (US 2004/0174890 A1)

Regarding claims 1, 5, 8, 12-13, 18-19, 27, 30-31, 35 and 39, Mackay discloses receiving a plurality of packets at a plurality of first location in a first stacked switching device (642a of FIG. 6A) operatively coupled to a second stacked switching device

(642b of FIG. 6A), each packet identifying a corresponding destination location where each packet is to be delivered (**Mackay discloses an Ethernet switch (FIG. 3C) in a data communication network, it is inherently included Ethernet data packets comprises packet header with source and destination addresses**), each stacked switching device (642a, 642b of FIG. 6A) including a plurality of switching devices stacked on top of each other (See FIG. 3 and 4). Mackay does not teach a congestion control mechanism comprises steps of queuing the received plurality of packets in at least one queue; receiving a message one the first stacked switching device from the second stacked switching device, the message identifying a congested second location in the second stacked switching device; determining that a destination location of a first packet of the received plurality of packets is the congested second location; and holding the first packet in the at least one queue.

Chen et al disclose method comprising (see FIG. 1 & 3):

receiving a plurality of packets at a plurality of first locations in a first switching device (**First network switch chip**) operatively coupled to a second switching device (**Second network switch chip**), the first switching device to transmit the plurality of packet to a plurality of second locations in the second switching device, each second location configured to receive packets from one or more first locations and other second locations;

queuing the received plurality of packets in at least one queue (**Network port control units associated with output queues**).

receiving a message for regulating packet flow on the first switching device from the second switching device, the message identifying a congested second location in the second switching device (**"The network switch chips 52 and 54 may perform congestion control according to the congestion information of the destination port. The second network switch chip 54 learns the congestion information of the first connection ports 58 through the direct link 55 and stop sending data packet to the destination addresses associated with the congested ports in the first network switch chip 52. On the other hand, the first network switch chip 52 learns the congestion information in second connection ports 68 through the direct link 55 and stop sending data packet to the destination addresses associated with the congested ports in the second network switch chip 54."** [0023]); determining that a destination location of a first packet of the received plurality of packets is the congested second location; and holding the first packet in the at least one queue

Chen et al teaches " The first network switch chip 12 and the second network switch chip 14 can share the congestion condition through the connection of the first high-speed network port 16 and the second high-speed network port 18. For example, once a connection port (in the first connection ports 15 or the second connection ports 17) congests, the first switch chip 12 or the second network switch chip 14 stops the data transmission from the source port toward the congested port, in other words the first network switch chip 12

and the second network switch chip 14 can send a command or a control packet to stop data transmission to the congested port until the congestion is relieved."
[0014].

It would have been obvious to those having ordinary skill in the art at the time of the invention was made to implement the method for congestion control, such as taught by Chen et al, in the data communication network of Mackay, to perform flow control, drop control and backpressure control and improve data throughput.

Regarding claims 2 and 9, wherein the message comprises a frame including an identifier identifying the congested second location ("**flow control status report x[8:0] congestion information of the ports y**", see **TABLE 1**)

Regarding claim 14, wherein the first switching device includes an application-specific integrated circuit ("**network switch chip**" see **FIG. 1**)

Regarding claims 28, 31, Chen discloses wherein a packet for packet transmission to a destination second location is queued at a sending first location (**Figure 3 shown packets to be transmitted from First network switch chip (52) to a destination second location in second network switch chip 54 is queued in a sending first location (First queue control unit 63 and First buffer control unit 62).**

Regarding claim 29, Chen further discloses in response to receiving the message slowing transmission of the packet from the first location, upon determining that the destination second location is the congested second location.

Chen further teaches “In case that one or more port is congested, the network switch chip 30 stops the data coming from external stations or switches.” [0017] “When the congestion occurs, the network switch chip 30 determines a flow control approach according to the operation mode and the flow control ability of the station connected to the physical layer 37. The flow control approaches include the full duplex flow control; drop control and backpressure control. When the stations or switches connected to the physical-layer devices 37 (source ports) have full duplex ability, the network switch chip 30 performs flow control.” [0017], [0018].

Regarding claims 33 and 38, wherein the frame is a FAUSE frame (“a control packet” [0014])

Regarding claim 34 wherein the PAUSE frame temporarily permits stopping packet transmission (“The network switch chips 52 and 54 may perform congestion control according to the congestion information of the destination port. The second network switch chip 54 learns the congestion information of the first connection ports 58 through the direct link 55 and stop sending data packet to the destination addresses associated with the congested ports in the first

network switch chip 52. On the other hand, the first network switch chip 52 learns the congestion information in second connection ports 68 through the direct link 55 and stop sending data packet to the destination addresses associated with the congested ports in the second network switch chip 54."
[0023])

Regarding claims 36 and 40, wherein the frame comprises a second segment identifying the congested second location (see **TABLE 1, "flow control status report x [8:0] congestion information of the ports y).**

Regarding claims 37 and 41, Chen et al further discloses determining that the congested second location is no longer congested; and transmitting the first packet in the at least one queue to the destination location of the first packet (**Chen et al teaches " The first network switch chip 12 and the second network switch chip 14 can share the congestion condition through the connection of the first high-speed network port 16 and the second high-speed network port 18. For example, once a connection port (in the first connection ports 15 or the second connection ports 17) congests, the first switch chip 12 or the second network switch chip 14 stops the data transmission from the source port toward the congested port, in other words the first network switch chip 12 and the second network switch chip 14 can send a command or a control packet to stop data transmission to the congested port until the congestion is relieved."** [0014])

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Ni (US 6,680,910) discloses an integrated circuit includes the capability, either alone or in combination with other integrated circuits, to monitor the receive rate utilization of a network interface unit and adjust the minimum interval for the transmission of a flow control frame, based at least one part, on the receive rate utilization determined.

DeLong (US 6,141,344) a coherence mechanism for distributed address caches in a network switch.

Calvignac et al (US 2003/0110339 A1) discloses a chip to chip interface for interconnecting chips.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda Pham whose telephone number is (571) 272-3135. The examiner can normally be reached on Monday-Friday from 9:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild, can be reached on (571) 272-2092.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

October 14, 2008

/Brenda Pham/

Primary Examiner, Art Unit 2616